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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,950	11/27/2000	Richard E. Smalley	11321-P002D1	5035

7590

07/08/2002

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EXAMINER

COLE, ELIZABETH M

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 07/08/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,950

Applicant(s)

SMALLEY ET AL.

Examiner

Elizabeth M Cole

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 35-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 35-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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1. Claims 52-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how "buckypaper" differs from a felt since both a felt and buckypaper are a mat of ropes of carbon nanotubes. For the purposes of the art rejections below, buckypaper will be treated as another word for felt.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 35-57 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by

WO 97/09272 to Smalley et al. Smalley et al discloses a method of making single-wall carbon nanotubes comprising the steps of laser vaporizing a mixture of carbon and one or more Group VIII transition metals, condensing the vapor to form a single-wall carbon nanotube having a live end, and then supplying the carbon vapor to the live end in an annealing zone. See page 1, lines 3-16 and page 2, lines 13-25. Smalley et al also discloses ropes comprising single-wall nanotubes wherein the ropes have greater than 50%, greater 74% and greater than 90% single-wall carbon nanotubes. The ropes may comprise greater than 50%, greater than 75% and greater than 90% armchair single-wall carbon nanotubes. The 2-D lattice constant is about 17Å. The single-wall carbon nanotubes in the ropes have a diameter of $13.8 \text{ Å} \pm 0.2 \text{ Å}$. The invention of Smalley et al also produces a felt of the carbon nanotubes which is defined as a tangled collection

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of ropes stuck together in a mat. Felts of 10 mm², 100 mm², 1000 mm² or greater may be formed.

Since buckypaper is also defined in the art as being a mat of carbon microtubes, the felts of

Smalley et al anticipate the claimed buckypaper. See 23, line 19 - page 24, line 14.


4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. "Large-scale purification of single-wall carbon nanotubes: process, product and characterization", Applied Physics A, Materials Science & Processing, Vol. 67, pp 29-37, 1998, which defines buckypaper at page 32, lines 1-6.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (703) 308-0037. The examiner may be reached between 6:30 AM and 5:00 PM Monday through Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (703) 308-2414.

Inquiries of a general nature may be directed to the Group Receptionist whose telephone number is (703) 308-0661.

The fax number for official faxes is (703) 872-9310. The fax number for official after final faxes is (703) 872-9311. The fax number for unofficial faxes is (703) 305-5436.


Elizabeth M. Cole
Primary Examiner
Art Unit 1771

e.m.c

June 27, 2002